JAVELIN WEAPON SYSTEM: FROM LEGACY TO OBJECTIVE FORCE

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Introduction

The end of the Cold War and collapse of the Warsaw Pact prompted DOD to change the way it planned for future conflicts. In issuing its first Quadrennial Defense Review in 1997, DOD looked at the U.S. Defense strategy in relation to the world environment. The Chief of Staff of the Army (CSA) realized that the Army needed to refocus its force structure to address the changing world environment and improve its long-term capabilities to ensure a viable future. He called this process "transformation." The Army's transformation initiatives call for the fielding of an interim force in FY01 to serve as a wedge between the light and heavy forces. Following the fielding of this interim force, the Army's objective force will be developed and fielded in the FY04-10 timeframe.

The accelerated fielding of the interim force dictated that it be equipped with existing or off-the-shelf equipment. In this process, the capabilities of the Javelin Weapon System made it a natural candidate not only for the interim force, but for the objective force as well.

Legacy Force

The Javelin, previously known as the Anti-Armor Weapon System–Medium (AAWS-M), is a fire-and-forget, medium-range, man-portable anti-armor missile system that replaces the Dragon weapon system. It features top-attack and direct-attack modes, a soft-launch capability that enables the gunner to fire from enclosures or covered firing positions, and the capability of defeating current and future armor in day and night engagements at ranges exceeding 2,500 meters. Javelin's two major tactical components are its round (missile sealed in a disposable launch tube), weighing 34 pounds, and its reusable command launch unit (CLU), weighing 14 pounds. A significant advantage over current command-to-line-of-sight missiles is improved gunner survivability because once he fires he can move or refire at another target.

Javelin is a jointly fielded weapon system for both the Army and Marines. Since 1996, Javelin has been fielded to Army units located at Fort Benning, GA; Fort Bragg, NC; Fort Lewis, WA; Fort Stewart, GA; Fort Drum, NY; Korea; and Italy. Additionally, the Marines have fielded 12 battalions with Javelin since 1999.

One of Javelin's earliest tests was in March 1997 during the Advanced Warfighting Experiment (AWE) at the National Training Center (NTC), Fort Irwin, CA. The AWE is a series of exercises aimed at demonstrating progress toward achieving the CSA's vision for the Army—Force XXI. During the AWE, light infantry battalions, armed with 18 Javelin CLUs each, evolved into a highly effective anti-armor force. Their mission was to block strategic passes and deploy Javelin hunter-killer teams around the battlefield. These Javelin-equipped light-infantry battalions were so effective that the "world-renowned" NTC opposing force (OPFOR) changed tactics in an effort to avoid them.

Javelin's success during the AWE gained it both user and public praise as a superb weapon system. Based on this success and the termination of the Armored Gun System in 1996, Javelin was fielded early to the 82nd Airborne Division to provide reliable anti-armor capabilities that the 82nd lacked during its Desert Storm deployment. The affirmation of the decision to field Javelin to the 82nd came during the 82nd's February 1999 NTC rotation. The task force, comprised of 1 tank and 2 airborne battalions, deployed 40 Javelin systems against NTC's OPFOR. Javelin's flexibility, coupled with its tremendous lethality, allowed the task force commander to demonstrate the synergy capability when a light- and heavy-force mix is deployed in what was previously considered a heavy-only environment. During the defensive exercise of this NTC rotation, the airborne battalion that encountered the brunt of the OPFOR attack was able to eliminate the OPFOR's forward security element (FSE).

Using Javelin lessons learned from this battle, the task force leadership incorporated Javelin in its offensive preparations. During the offensive attack, the task force positioned an airborne battalion on a major enemy avenue of approach. Its mission was to strip the enemy of the FSE, which would slow the enemy and allow an armor battalion to attack the enemy's flank. An airborne company equipped with eight Javelin systems caught the OPFOR moving; the OPFOR couldn't find the well-emplaced and dispersed Javelin teams and proceeded to lose their FSE and advanced guard main body.

Throughout this rotation, new doctrine, tactics, techniques, and procedures emerged, showcasing the seemingly limitless potential of the Javelin system. It also highlighted the fact that a properly employed Javelin is virtually invisible on the battlefield.

Interim Force

Javelin demonstrated success and flexibility during AWE and NTC exercises, and with the 82nd Airborne

Division during its 1999 NTC rotation. This made it an obvious choice for inclusion in the Army's transformation plans. One of the Army's first transformation initiatives was the development of an interim force that included brigade combat teams (BCTs) formed as a wedge between heavy and light forces. The BCTs are required to:

- Be deployable by C-130 within 96 hours;
- Be combat capable upon arrival;
- Be decisive in offensive action, even from dismounted-infantry platforms;
- Be optimized for use in close, complex, or urban terrain;
- Contribute to holistic survivability and force protection; and
- Be dependent on reduced sustainment footprints.

Based on these requirements, Javelin emerged as the ideal system for equipping the BCTs. In particular, Javelin has proven to be highly reliable, deployable, and versatile, and inherently capable of destroying bunkers, helicopters, and other materiel. Although its primary role is as an infantry-dismounted platform, Javelin has demonstrated its ability to be integrated with and fired from High Mobility Multipurpose Wheeled Vehicles and light armored vehicles.

Javelin once again demonstrated its capabilities in its latest deployment with the 10th Mountain Division rotation at the Joint Readiness Training Center, Fort Polk, LA. Using Javelin in its surveillance mode, search and destroy teams were able to take the fight to the OPFOR, thus denying them rest. This rotation gave Javelin the opportunity to demonstrate and validate its close-range effectiveness and its ability to be used in Military Operations in Urbanized Terrain.

Javelin was designed to minimize its sustainment footprint. Its "wooden-round" concept means that maintenance is never required on the Javelin round. Currently, its CLU reliability is more than three times better than the requirement. In addition, Javelin's built-in ability to load upgraded software indicates that improvements to the system's lethality can be realized without taking the system out of the field and without hardware changes.

Javelin's advanced fire-and-forget technology and flexible capabilities made it a natural choice for the Army's interim force, but with Javelin's overmatch reputation and potential for future improvements, Javelin was also selected for inclusion into the Army's objective force.

Objective Force

Even with Javelin's current dominance over any known armor threat, there are still opportunities for growth within the Javelin system as it supports the Army's objective force. These growth areas include a Counter Active Protection System (CAPS), CLU improvements, a K-charge warhead (discussed below), extended range, and integration with unmanned ground vehicles (UGVs) and with the Land Warrior System.

The CAPS opportunity entails developing a third-generation CAPS for incorporation into the Javelin round to defeat any future armored vehicle's active protection system.

Improvements to the CLU focus on local area processing and could include electronic zoom, frame integration, and a bigger A-focal. Advantages of these CLU improvements are increased threat detection, increased recognition range, fewer gunner adjustments, and faster lock-on.

A warhead improvement program will replace the current Javelin warheads with K-charge warheads. These new warheads will improve lethality against bunkers, buildings, armored personnel carriers, and tanks. Missile size and weight will remain unchanged.

The Marine Corps is considering an extended-range (4 kilometers) Javelin as a possible solution for its Anti-Armor Weapon System-Heavy, intended for a first unit equipped in 2007. Incorporating an enhanced CLU, a larger flight motor, and a more robust seeker into Javelin will allow fire-and-forget performance at the 4-kilometer range with minimal development risk.

The integration of Javelin on UGVs would lighten the soldier's workload. Additionally, the ability to image and communicate between a Javelin missile and a remote gunner station has been demonstrated. Efforts are planned to validate Javelin compatibility and function with a robotic platform. This integration would allow the soldier to detect, designate, and engage "threat" systems from remote locations.

Finally, integration of Javelin with the Land Warrior System would give the Land Warrior-equipped soldier the ability to fire Javelin from his system. Javelin software would be modified to run on Land Warrior equipment, allowing Javelin-required optic functions to be performed by the Land Warrior thermal weapon sight, thus eliminating the need for Javelin CLU. The CLU would still be required for soldiers not equipped with the Land Warrior.

Conclusion

By including Javelin in the objective force, the Army has placed a vote of confidence in Javelin's versatility and longevity. This has opened real opportunities for Javelin in the areas of Foreign Military Sales (FMS) and co-production with our allies. If our allies choose to provide Javelin to their troops, our interoperability would potentially allow for common repair and re-supply points. To date, more than a dozen countries have requested price and availability information; two FMS assessment cases have been conducted, and a third assessment case is being processed.

During the 1997 Soldier Systems Review conference at Natick, MA, Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics and Technology LTG Paul J. Kern stated that "If we are really good, and we are, the soldier of 2025 will be as effective as the tank of 1995." A Javelin-equipped objective force could make this statement true by 2010.

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